

# Application of Information Technology in Chinese Language and Literature Teaching

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**Abstract.** The basic purpose of information technology is to promote, improve and support the teaching process. Language teaching technology is one of the products of communication and information technology in human science. It has a unique theoretical framework and principles. This technology is multidimensional and cross cutting. It is formed through the research on the theoretical and practical principles and basis of useful language level, computer language and knowledge of using the best technology. This paper discusses the problems existing in information technology teaching and information teaching environment, and finds that different types of teachers have different teaching methods.

**Keywords:** Information Technology, Chinese Language, Teaching Methods, Teachers

## 1 Introduction

With the continuous progress of science and technology, great changes have taken place in people's lifestyle and social model. Information technology (it) is booming at an alarming speed, which has a far-reaching impact on the education system of all countries in the world. Computer, Internet and other technologies are now being used by teachers and learners at an increasing speed. Institutions are exploring ways to make effective use of information technology for education.

With the continuous development of computer technology, many experts have studied language teaching. For example, Manalu H F study aims to understand how often students and lecturers use information technology in an English learning environment. A questionnaire was distributed among students and lecturers in the Department of English literature at the University of Bangladesh. The results show that lecturers and students have a positive attitude towards the use of information technology tools and think that using these tools in the teaching process is very useful [1]. Wang L, Xu Z constructed a wireless distance English teaching system based on mobile edge computing, and collected data from the database by means of case analysis and literature analysis. The teaching mode based on network teaching is established, and a large number of relevant documents are read and analyzed through literature research [2]. Sabiri K A discussed and analyzed the factors affecting pre service and in-service teachers and student teachers' views and confidence in ICT integration [3]. Although the research results of Chinese teaching are quite rich, there are still deficiencies in the application of information technology in Chinese teaching.

In order to study the application of information technology in Chinese teaching, this paper listened to the research on information technology and Chinese teaching, and established an automatic identification system of information points. The results show that information technology is conducive to Chinese teaching.

## **2 Method**

### **2.1 Information technology**

#### (1) Several problems in Information Technology Teaching

The implementation process of information technology curriculum is a process of symbiosis between real culture and virtual culture, between people and media and various information cultures, and a process of cooperative learning between teachers and students. The discipline characteristics of information technology determine that its educational environment is a harmonious field nourished by culture [4]. The existence of information technology classroom authority leads to the status differences between teachers and students in the process of teaching dialogue, which is mainly reflected in the authority of teachers. In the field of teaching, both teachers and students may be the transmitter of information [5]. However, in the current information technology classroom teaching in senior high school, most teachers still dominate the classroom, play an absolute authority and leadership role, and implement "localized" teaching, while teachers are in a strong position in discourse communication. Their application in information technology classroom teaching dialogue is in line with the teaching concept of the new curriculum and is affected by discourse hegemony, the authoritative image of teachers has also reached the extreme [6]. At present, in the process of information technology classroom teaching dialogue, most teachers are monologues. The communication between teachers and students is essentially one-way. There is almost no "real" interaction between the subjects of teaching dialogue, which plays a decisive restrictive role in the performance of students' dialogue [7].

#### (2) Information teaching environment

Information-based teaching environment is the sum of various situations and conditions in information-based classroom teaching [8]. It is a classroom teaching environment created by using modern educational theory and information technology. From the perspective of information construction and activity mode, China's school education information classroom teaching environment can be divided into multimedia classroom teaching environment, audio-visual communication environment and network teaching environment. Information-based teaching environment mainly refers to the multimedia classroom under the multimedia classroom teaching environment [9]. Its main components are multimedia podium, projector, projection screen and blackboard. Teachers can use computers and projectors to display teaching content on the projection screen, and use computers and audio-visual equipment to play video, audio and video, so that the whole class can observe and watch clearly and concretely at the same time. The application of task-based teaching method in the environment of information technology provides students with more opportunities to participate in class and practice [10]. Students use Chinese for meaningful communication in a real and natural language environment. Through communication, interaction, unity and cooperation, they complete various tasks in the target language, so as to master language knowledge and improve their comprehensive language application ability.

## 2.2 Chinese language and literature teaching

### (1) Humanity of Chinese knowledge

Chinese is presented in the form of literary texts [11]. Every literary work is the author's spiritual product. Although it has no flesh and blood, it exists in a plump and round posture, but it has the same meaning of life. Then the humanity of literary knowledge in Chinese teaching is undoubtedly stronger [12]. We can see that the teaching contents and achievements of Chinese are language expression skills, but this skill permeates a strong humanistic spirit from bottom to top; the other part is the emotional thinking that we can't see. This is tacit knowledge, and the knowledge of Chinese language is the hidden language expression and application ability. Language expression and application ability. Besides reading and writing skills, listening and speaking skills are also very important. We should be obedient, get information from "listening", judge the language environment and language object, and choose the appropriate corpus when speaking, so as to form a unique language style.

### (2) Chinese learning style

In the existing textbooks, we can find many written expressions, and there are still many characteristics in explaining the relevant grammar and vocabulary: the problems include difficult words, difficult understanding and difficult grammar. These problems pose great challenges to Chinese learning and improve students' understanding of Chinese learning. We can understand Chinese grammar from another angle, simplify and clarify Chinese grammar. For example, the explanation of professional grammar is replaced by relevant illustrations and relevant literature. In the process of classifying each category, several examples can be obtained to prove the previous knowledge, which not only makes learners understand each knowledge point more accurately, but also can better form learners' learning concept, better promote memory, and lay a solid foundation for long-term memory in the future. From another point of view, the previous teaching materials are more complex, and there should be more such expressions, so as to combine practice with teaching, better promote teaching and promote the learning of Chinese and culture.

### (3) Introduction to teaching methods of different types of Teachers

Expert teachers also tend to use multimedia to present teaching content, but in terms of media function, they prefer to use multimedia to create situations, guide teaching content, stimulate students' positive attention and stimulate students' thinking in the form of problems. Expert teachers use information technology to implement the process of information teaching design and development, adopt reasonable teaching strategies, create real teaching situations, and pay attention to the cultivation of students' creative thinking. Through the situation created by teachers, students can find problems, put forward problems and solve problems. Teachers throughout the teaching process to explore the idea of ingenious teaching methods. Therefore, whether in the process of teaching design or classroom teaching, novice teachers should pay attention to strengthening the application of inquiry teaching, create a real teaching situation with the help of information-based teaching environment, help students find and solve problems from the situation, guide students to think deeply and deeply understand the teaching content.

## 2.3 Automatic Identification of Information points

After grouping multiple clusters, the system evaluates the clustering effect according to the following indicators to measure the clustering effect. These indicators are several verification indicators based on the distribution of class elements. These indicators include compaction verification index CMP, separation verification index SEP and comprehensive verification index OCQ (considering CMP and SEP). The degree of compaction (CMP)

index is defined as formula (1):

$$\text{WheCmp} = \frac{1}{c} \sum_{i=1}^c \frac{V(C_i)}{V(X)} \quad (1)$$

re  $C$  is the number of classes divided.

The keyword defined by Boolean model only appears or does not appear in the document, that is, the keyword weight has duality:  $W_{i,j} \in (0,1)$ . The correlation between the document and  $Q$  is defined as follows (2) ( $q$  is a Boolean expression):

$$\text{Sim}(d_j, q) = \begin{cases} 1, q \in d \\ 0, q \notin d \end{cases} \quad (2)$$

If  $\text{Sim}(d_j, q)$  indicates that the query statements  $Q$  are related to the document, otherwise they are not related.

When evaluating an information extraction system, the above two indexes must be considered to comprehensively evaluate the performance of the system.  $F$  indicator is an indicator established to evaluate comprehensive performance, and its calculation formula is as follows (3):

$$F - \text{Measure} = \frac{(\beta^2 + 1) \text{Precision} \text{Recall}}{\beta^2 \text{Precision} + \text{Recall}} \quad (3)$$

Among them,  $\beta$  is a weight parameter that determines whether to focus on recall rate or accuracy rate during evaluation. It is preset by the system. The relative importance of accuracy and recall can be reflected by adjusting the  $\beta$  value.

## 3 Experience

### 3.1 Object extraction

Taking novice teachers as the research object, this paper uses the method of case study to observe the classroom teaching behavior of novice teachers in two different teaching environments. In the process of observation, in order to maintain the homogeneity of observation contents in the two teaching environments, a novice teacher is selected as the research object to avoid the impact of teachers' individual differences on teaching behavior; as far as students are concerned, the grades of the two classes remain the same, and the contents of the courses taught are the same. In this way, we should try our best to avoid the influence of other factors on Teachers' teaching behavior. Only classroom teaching environment can be used as the influencing factor of teachers' teaching behavior. After the experiment, the second questionnaire survey and on-site interview were conducted to the students in the experimental class. Finally, two students were tested for the second time. The purpose is to understand the changes of students' learning attitude and Chinese ability under the new teaching mode. Through the test results, we can understand the difference between task-based teaching method and traditional teaching method in the environment of information technology.

### 3.2 Experimental analysis

Firstly, it improves the automation requirements of the extraction system and the adaptability of the extraction rules. Due to the rapid growth of web pages, users constantly modify or add extraction rules according to the changing web pages, which is obviously inefficient. However, the current information extraction methods with high degree of automation have low accuracy and adaptability, poor practicability and good performance. Information extraction technology requires the participation of a large number of users, and the degree of automation is not high. How to solve the contradiction between them and realize the dynamic balance between them has become an urgent problem to be solved. At

the beginning of the experiment, the students conducted a pre-test, including oral and written tests. Teachers collect relevant data to judge students' actual Chinese level. At the same time, the first questionnaire survey was conducted on the students of the two classes to understand the students' attitude towards Chinese learning, their interest and motivation in Chinese learning and the current situation of Chinese classroom teaching. At the same time, the students put forward their own views and suggestions on the reform of Chinese teaching. After the prediction test, the author uses different teaching modes in the two classes and carries out teaching work at the same time. Combined with Chinese teaching materials, the experimental class adopts the Chinese task-based teaching method under the environment of information technology to cultivate students' Chinese ability. The control class organized by the same teacher still practices the same Chinese materials according to the traditional teaching methods.

## 4 Discussion

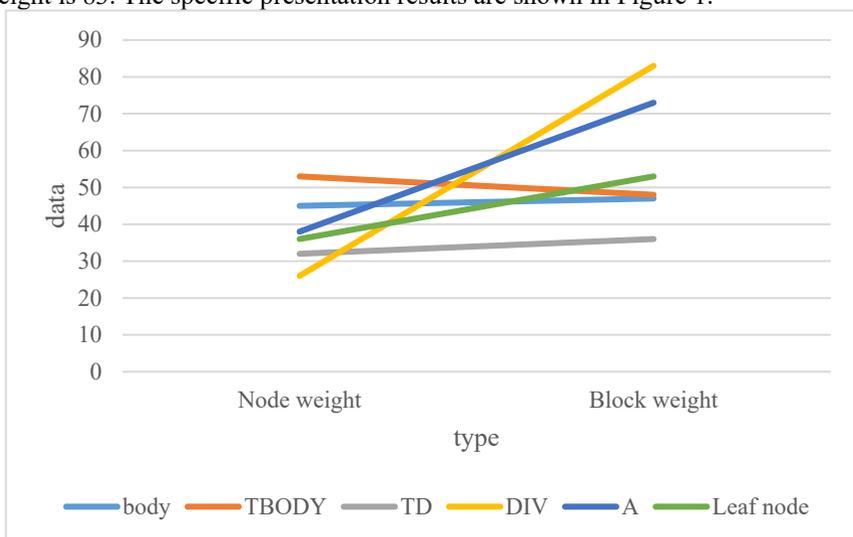
### 4.1 Extraction of XML master data block

In order to reduce the complexity of extraction, the strategy first weights the data blocks, extracts the main data block, and then further extracts the data records of interest to users in the main data block. According to the data block weight algorithm, calculate the weight of the data block based on the bottom-up first common ancestor node as the div, as shown in Table 1.

**Table 1.** Div data block weights.

	body	TBODY	TD	DIV	A	Leaf node
Node weight	45	53	32	26	38	36
Block weight	47	48	36	83	73	53

It can be seen from the above that the node weight of the body is 45 and the data block weight is 47; the node weight of tbody is 53 and the data block weight is 48; the node weight of TD is 32 and the data block weight is 36; the node weight of is 26 and the data block weight is 83. The specific presentation results are shown in Figure 1.



**Fig. 1.** Div data block weights.

As can be seen from the above figure, in the information display web page, the number of master data blocks is usually the number of blocks corresponding to the two largest weights, which is reflected in the main data block extraction of Div. The block corresponding to the two largest data block weights is the master data block (Note: the data block weight corresponding to the calculation label represents the data block weight under the label)

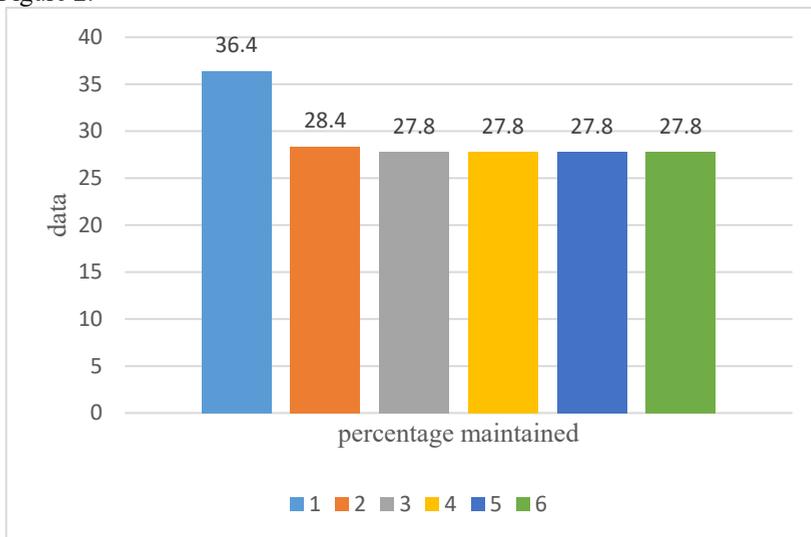
#### 4.2 Recommendation strategy and principle of course synchronous reading materials

The course synchronous reading materials need to have enough vocabulary and text overlap. In the stage of basic education, expanding students' vocabulary is the key content of Chinese learning, and vocabulary is also the key factor affecting students' reading. Vocabulary reflects their reading ability. For primary and middle school students who are relatively lack of experience and social knowledge, especially primary and middle school students, it is necessary to strictly control the proportion of superwords in synchronous reading materials. In addition, high-level words should not be arbitrary, as shown in Table 2.

**Table 2.** Ebbinghaus memory curve.

Days	1	2	3	4	5	6
Percentage maintained	36.4	28.4	27.8	27.8	27.8	27.8

It can be seen from the above that forgetting begins immediately after learning, and the process of forgetting is not uniform. At first, the forgetting speed is very fast, and then gradually slow. After a long time, it is almost no longer forgotten. The specific results are shown in Figure 2.



**Fig. 2.** Ebbinghaus memory curve.

The above results show that students' forgetting law should be considered when choosing synchronous reading materials. In our daily study, we often encounter the phenomenon of "rebirth of reading and writing". The so-called "reading and writing cycle" refers to the phenomenon that students' memory traces gradually disappear or are disturbed with the passage of time. In other words, the vocabulary of grade 6 can appear in the synchronous reading materials of grade 5, while the vocabulary of junior middle school

should be strictly controlled.

## 5 Conclusion

With the continuous progress of society and the rapid development of information technology, the application of information technology has widely entered the field of education, which has a great impact on the concept, method and mode of education. Information technology has injected new vitality and vigor into education. The main purpose of this paper is to explore the latest development of information technology in language and literature research. The research results show that different types of teachers have different teaching methods, and the use of information technology undoubtedly provides great help for teachers in the teaching of Chinese language and literature.

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## References

1. Manalu H F. The Analysis of Information Technologies Usage for Academic Purposes in English Language Teaching and Learning at Universitas Bangka Belitung[J]. *JOALL (Journal of Applied Linguistics and Literature)*, 2019, 4(2):177-184.
2. Wang L, Xu Z. An English Learning System Based on Mobile Edge Computing Constructs a Wireless Distance Teaching Environment[J]. *Mobile Information Systems*, 2021, 2021(1):1-9.
3. Sabiri K A. ICT in EFL Teaching and Learning: A Systematic Literature Review[J]. *Contemporary Educational Technology*, 2019, 11(2):177-195.
4. Mahzari M, Saad M, Ethleb H, et al. Learning Arabic as a Second Language: An Exploration of the Efficacy of Arabic Subtitles by Netflix Viewers[J]. *The Iranian EFL Journal*, 2021, 11(3):174-197.
5. Li W. Multimedia Teaching of College Musical Education Based on Deep Learning[J]. *Mobile Information Systems*, 2021, 2021(2):1-10.
6. Hashemi A, Si N K. The Barriers to the Use of ICT in English Language Teaching: A Systematic Literature Review[J]. *International Journal of Information and Communication Technologies in Education*, 2021, 3(1):77-88.
7. Jufri S, Apriyanti D. Acquiring English of Teaching Subject through CLIL in Teacher Training Bung Hatta University[J]. *Journal Polingua Scientific Journal of Linguistics Literature and Education*, 2019, 8(2):53-56.
8. Sushma B. Teaching Analytical Writing Through Editorials Of Newspapers[J]. *International Journal of Scientific & Technology Research*, 2020, 8(3):4711-4713.
9. Pieper I. The challenge of plurality. A comment on the occasion of the journal *L1-Educational Studies in Language and Literature* being 20[J]. *L1-Educational Studies in Language and Literature*, 2021, 21, Special Issue L1(SI Twenty years L1):1-5.
10. Yawiloeng R. Second Language Vocabulary Learning from Viewing Video in an EFL Classroom[J]. *English Language Teaching*, 2020, 13(7):76-83.

11. Yan Y, Sun X, Li B, et al. Construct a Teaching System Combining Image Linguistics and Multimedia Technology[J]. *Wireless Communications and Mobile Computing*, 2021, 2021(1):1-11.
12. Zhou Y. VR Technology in English Teaching from the Perspective of Knowledge Visualization[J]. *IEEE Access*, 2020, PP(99):1-1.